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Draper et al. (43) **Pub. Date: Feb. 12, 2004**(54) **FUEL SYSTEM**(52) **U.S. Cl.** **123/299; 123/447**(76) **Inventors:** **David E. Draper**, Bridgnorth (GB);
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A fuel system for use in an internal combustion engine comprising a fuel pump having a pumping cycle during which fuel is pressurised to a high level within a pumping chamber for delivery to an injector. The injector is arranged to provide a primary fuel injection event, and a secondary fuel injection event within the same pumping cycle, in use. The injector includes a valve needle which is engageable with a valve needle seating to control fuel delivery and an injection control valve arrangement for controlling movement of the valve needle so as to control the primary and secondary fuel injection events. The fuel system further comprises an accumulator volume for storing high pressure fuel for delivering the secondary fuel injection quantity, and additional valve arrangement for controlling the supply of fuel stored within the accumulator volume to the injector for the secondary injection event. The invention finds particular application in delivering a late-post injection of fuel, subsequent to a main injection of fuel, for the purpose of regenerating an after treatment device.

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